National Electric Power Regulatory Authority
Islamic Republic of Pakistan

Registrar

NEPRA Tower, Attaturk Avenue (East), G-5/1, Islamabad
Ph: +92-51-9206500, Fax: +92-51-2600026
Web: www.nepra.org.pk, E-mail: registrar@nepra.org.pk

No. NEPRA/DG (Lic)/GCA-05/ 15017-25

September 23, 2024

Mr. Saleem uz Zaman
Chief Executive Officer
Burj Solar Energy (Private) Limited
Office No. 202, 11-C, Al Murtaza Commercial Lane
DHA Phase-8, Karachi

Subject: **Grant of Generation Concurrence No. SGC/C/03/2024**
Generation Concurrence Application No. GCA-05
Burj Solar Energy (Private) Limited (BSEPL)

Reference: Your letter No. BSPPL/GLA/EFLC-SAH/23-001 dated 04.09.2023

Enclosed please find herewith Determination of the Authority in the matter of application of Burj Solar Energy (Private) Limited (BSEPL) for the grant of concurrence for its proposed 03.006 MWp solar based generation facility at Fiesland Compina Engro Pakistan Limited, 8-KM Pakpattan Road, District Sahiwal, Punjab alongwith Dissent Note of Mr. Rafique Ahmed Shaikh, Member (NEPRA). The Generation Concurrence No. SGC/C/03/2024 granted by the Authority to BSEPL pursuant to Section-14(B)(5) of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 as amended and replaced from time to time is annexed to the determination.

2. Please quote above mentioned Generation Concurrence No. for future correspondence.

Enclosure: As Above

Wasim Anwar

(Wasim Anwar Bhinder)

Copy to:

1. Secretary, Power Division, Ministry of Energy, 'A' Block, Pak Secretariat, Islamabad
2. Secretary, Energy Department, Government of Punjab, EFU House, 8th Floor, 6-D Jail Road, Lahore
3. Managing Director, Private Power & Infrastructure Board (PPIB), Ground & 2nd Floors, Emigration Tower, Plot No. 10, Mauve Area, Sector G-8/1, Islamabad
4. Managing Director, National Transmission & Despatch Company (NTDC), 414 WAPDA House, Lahore
5. Chief Executive Officer, CPPA(G), 73 West, Shaheen Plaza, A.K. Fazl-e-Haq Rd, Blue Area, Islamabad
6. General Manager (System Operation), National Power Control Center – NTDC, H-8/1, Islamabad
7. Chief Executive Officer, Multan Electric Power Company, MEPCO Headquarters, Khanewal Raod, Multan
8. Director General, Environmental Protection Department, Government of the Punjab, National Hockey Stadium, Ferozpur Road, Lahore

National Electric Power Regulatory Authority
(NEPRA)

Determination of the Authority in the Matter of Application of Burj Solar Energy (Private) Limited for the Grant of Generation Concurrence

September 23rd, 2024
Case No. GCA-05

(A). Filing of Application

(i). Burj Solar Energy (Private) Limited (BSEPL) submitted an application on September 04, 2023 for the grant of generation concurrence in terms of Section-14B(5) of Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (the "NEPRA Act").

(ii). The Registrar examined the submitted application and observed some discrepancies in the same in terms of the NEPRA (Application, Modification, Extension and Cancellation) Procedure Regulations, 2021 (the "Licensing Regulations") and directed BSEPL to submit missing information/documents. BSEPL completed the required information on October 06, 2023 and subsequently, the Authority registered the application for consideration for the grant of the generation concurrence as stipulated in the Licensing Regulations. The Authority published a notice in one (01) Urdu and one (01) English newspaper on January 11, 2024 to invite comments of general public, interested and affected persons in the matter as stipulated in Regulation-7 of the Licensing Regulations.

(iii). In addition to the above, the Registrar also sent letters on January 11, 2024 to different stakeholders including but not limited to Govt. Ministries, their attached departments, various Authorities/corporations/companies and different representative organizations for soliciting their views and comments for assistance of the Authority in terms of provisions of the licensing regulations.

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(B). Comments of Stakeholders

(i). In response to the above, comments were received from Central Power Purchasing Agency (Guarantee) Limited (CPPA-G) only. In its comments, CPPA-G submitted that as per Section-14B(5) of the NEPRA Act, the licensing regime for generation companies has ceased to exist and the Authority can now only grant generation concurrence to applicants. In this regard, the Authority has not yet specified the frame work for the grant of generation concurrence and related technical standards for establishment of the power plant, therefore, in absence of the said the grant of concurrence may not be a prudent practice. Further, Section-14D(3) and Section-23(E) of the NEPRA Act mandates the acquisition of supply licence from the Authority to supply electricity to any Bulk Power Consumer (BPC). CPPA-G stated that the applicant is intending to supply power by installing generation facility within the premises of BPC which is behind the metering supply arrangement and such arrangement will reduce the energy consumption of the BPC from the grid but its contribution in peak will remain the same. In view of the said, tariff rationalization of such consumers is required to ensure the full recovery of fixed cost. The current volumetric tariff structure does not accurately reflect the true cost of service and in past similar challenges for captive cases were addressed by introducing provisions for fixed cost recovery.

(ii). The Authority considered the above comments of the stakeholder(s) and in view of the observations of CPPA-G, considered it appropriate seeking the perspective of BSEPL. On the said, BSEPL submitted that Section 14(B) of the amended NEPRA Act provided a period of five (05) years from the expiry of which, instead of requiring a generation licence, a generation company is now mandated to obtain concurrence and accordingly the instant application for the same has been submitted for the consideration of the Authority. In this regard, the framework for granting concurrence and setting technical standards is currently being developed and in the absence of the same, BSEPL has adhered to the requirements for a generation licence, which the Authority has graciously accepted. In view of the said, the company requested that application for the grant of concurrence be considered, even without the finalized framework. CPPA-G, in its comments, emphasized that

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supplying power to BPCs will necessitate a supplier licence, and the company acknowledge this requirement. In this regard, BSEPL hereby undertake that once the Authority grants concurrence for the generation facility, a separate application for a supplier licence will be submitted. Further, on observations of CPPA-G on tariff rationalization to ensure full recovery of fixed costs, it is asserted that the proposal of the company is not exceptional or different and the Authority has granted similar arrangements in various cases, including the recent grant of generation licenses to Foundation Solar Energy (Private) Limited for its five different locations. Therefore, it is submitted that this issue is common in the sector, and linking it solely to the case of BSEPL is not appropriate.

(iii). The Authority considered the above submissions of BSEPL and in view of the submitted clarification, considered it appropriate to process the submitted request of BSEPL for the grant of concurrence for its proposed Photo Voltaic (PV) based generation facility as stipulated in the relevant rules and regulations.

(C). Findings/Comments

(i). The Authority has considered the submissions of BSEPL including the information provided with its application, comments of the stakeholder, the relevant rules & regulations in the matter. The observations in the matter are explained in the following paragraphs.

(ii). The Authority observed that the applicant i.e. BSEPL is an entity incorporated under Section 32 of the Companies Ordinance, 1984 (XL VII of 1984), having Corporate Universal Identification No. 0083734 dated May 08, 2013. According to Memorandum of Association (MoA), its business is to design, insure, build, establish, own, operate, manage electric power generating plants for the generation, supply, and transmission of electric power and in relation hereto, to establish, fix, carry out and maintain without limitation, any ancillary works, cables, wires, meter, lines, interconnect facilities, civil, electrical and mechanical works. Further, MoA envisages to carry out feasibility study for and to carry on the business of power generation and in relation thereto, to generate, accumulate, transmit, distribute and sell electric power to the public sector, including but not limited to

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KESC, Water and Power Development Authority, National Transmission and Dispatch company, Government and Government bodies, and the private sector and any other energy off taker whosever it may be. .

(iii). BSEPL in its application under consideration of the Authority has envisaged to set up 03.006 MWp PV based facility located at Friesland Compina Engro Pakistan Limited (FCEPL), 8-KM, Pakpatan Road, District Sahiwal in the province of Punjab. In this regard, BSEPL plans to supply the generated electric power to FCEPL as BPC, through cables/wires located on the property of the said entity. According to the submitted information, the total cost of the project will be about USD 1.969 million which will be financed through a combination of debt (80% of the total cost of project) and equity (20% of the total cost of project).

(iv). The sponsor carried out a feasibility study of the project including *inter alia*, solar power plant equipment details, power production estimates based on solar irradiation data of the project site, annual and inter-annual variation, near shading objects were taken into account, electrical studies, environmental study and project financing etc. The review of the feasibility study reveals that for the proposed locations to achieve the capacity of 03.006 MW, the company will be installing 5516 No. PV modules each of 545 Watt. In consideration of the said, it is clarified that the company plans installing PV cells from Tier-I manufacturers including Jinko Solar, JA Solar, Trina Solar, Renesola or LONGI. It is pertinent to mention that the company has confirmed that the deal for purchase of PV Cells of JAM72S30-545/MR with JA Solar has been locked and the manufacturer has assured an average capacity factor of 16.01%.

(v). The Authority has considered the submissions of BSEPL and has observed the supply from proposed generation facility will be supplied to FCEPL as a BPC in terms of the relevant provisions of the NEPRA Act. According to the system study of the project, the dispersal to the BPC will be made at 11kV through cables/wires located on the property of BPC. In this regard, it is pertinent to mention that BPC is defined term as stipulated in Section 2 (ii) of the NEPRA Act. According to the said, a BPC is a consumer who purchases or receives electric

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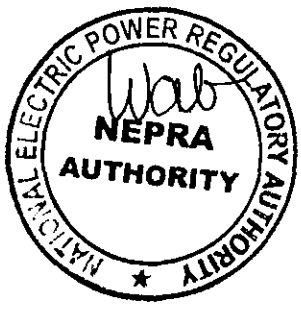
power, at one premises, in an amount of one megawatt or more or in such other amount and voltage level and with such other characteristics as the Authority may specify and the Authority may specify different amounts and voltage levels and with such other characteristics for different areas.

(vi). Further to the above, Section 2(v) of the NEPRA Act defines the term "Distribution" wherein the ownership, operation, management and control of distribution facilities located on private property and used solely to move or deliver electric power to the person owning, operating, managing and controlling those facilities or to tenants thereof is not included in the definition of "distribution". As explained above, the facilities to be used for delivery of electric power to above BPC are located on private property (without involving any public property or any third party) will be owned, operated, managed and controlled by the BPC, therefore, the supply of electric power to BPC by BSEPL does not constitute a distribution activity under the Act, and a distribution licence will not be required by the company.

(vii). Further, the Authority has also considered the submissions of BSEPL that necessary due diligence has been completed and there will be no environmental impact of the proposed arrangement as PV cells/panels will be utilizing only the existing space/infrastructure of the FCEPL/BPC. In this regard, BSEPL has confirmed that it will comply with the concerned environmental standards. In view of the said, the Authority considers that BSEPL is made obligatory to comply with the relevant environmental standards for which a separate article will be included in the proposed generation concurrence.

(viii). The Authority considers that the proposed project will result in optimum utilization of the Renewable Energy (RE) which was earlier untapped, resulting in pollution free electric power. It is pertinent to mention that solar is an indigenous source and such resources should have a preference for the energy security. As explained in the preceding paragraphs above, the company will be supplying generated electric power to a BPC directly which only involves laying a small length of feeder on the private property which concludes that the project will



not face any constraints in transmission of power. In view of the said, the Authority considers that the project of BSEPL has a case for the grant of concurrence for its proposed generation facility as stipulated in the NEPRA Act and relevant rules, regulations and other applicable documents.

(D). Grant of Concurrence

(i). The Authority considers that sustainable and affordable energy/electricity is a key prerequisite for the socio-economic development of any country. In fact, the economic growth of any country is directly linked with the availability of safe, secure, reliable and cheaper supply of energy/electricity. In view of the said, the Authority is of the considered opinion that for sustainable development, all indigenous power generation resources especially RE must be developed on a priority basis.

(ii). The Authority observes that the existing energy mix of the country is heavily skewed towards thermal power plants, mainly operating on imported fossil fuels. The continuous import of fossil fuels not only creates pressure on the precious foreign exchange reserves of the country but is also an environmental concern. Therefore, in order to achieve sustainable development, it is imperative that indigenous resources especially RE, are given priority for power generation and their development is encouraged. The Authority is really encouraged to observe that with each passing day, the cost of RE technologies is showing a downward trend making the same affordable for commercial use. The Authority is also encouraged to observe that the GoP is planning to enhance the share of RE from its current level of 5% to 30% of the total installed capacity by 2030. Furthermore, a number of initiatives are also being undertaken in the private sector in this regard.

(iii). The Authority has observed that in the current case, BSEPL has approached for the grant of generation concurrence for setting up a PV based generation facility with a cumulative installed capacity of 03.006 MWp for supplying electric power to FCEPL/BPC(s) which is also an existing consumer of the concerned utility i.e. Multan Electric Power Company. The Authority considers that the above proposal of BSEPL is in line with the provisions of the NEPRA Act,

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relevant rules and regulations framed thereunder and the vision of the GoP to enhance the contribution of RE in generation mix. The project will not only help BSEPL in diversifying its portfolio but will also enhance the energy security of FCEPL/BPC. Further, the project will also help in reducing carbon emissions by generating clean electricity, thus improving the environment.

(iv). As explained above, BSEPL has provided the details of location, technology, size, net capacity/energy yield, interconnection arrangements, technical details and other related information for the proposed PV based generation facility/solar power plant. In this regard, the Authority has observed that sponsors of the project have acquired/available with them the required premises/space for setting up the distinct PV based generation facilities and the same are being incorporated in the generation concurrence.

(v). The Authority has observed that the proposed generation facility of BSEPL will be used for supplying electric power to a BPC. According to Section-2(ii) of the NEPRA Act, a consumer who purchases or receives electric power at one premises, in an amount of one megawatt or more or in such amount and voltage level and with such characteristics as the Authority may determine/specify, is treated as BPC. Accordingly, the Authority allows the above mentioned entity/FCEPL as explained in the preceding Paras to be BPC of BSEPL.

(vi). Regarding supply to the BPC, the Authority observes that the BPC and the proposed generation facilities of BSEPL are located within the same premises and the BPC will be supplied through underground/overhead cable/feeder of 11 kV. Pursuant to the proviso to Section-21 of the NEPRA Act, the Authority is empowered to allow a generation company to sell electric power to a BPC located in the service territory of a distribution company. In view of the said, the Authority allows the BSEPL to sell electricity to BPC subject to obtaining Electric Power Supply Licence under Section-23E of the NEPRA Act. Further, under Section-2(v) of the NEPRA Act, ownership, operation, management and control of distribution facilities located on private property and used solely to move or deliver electric power to the person owning, operating, managing and controlling those facilities or to tenants thereof has

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not been included in the definition of "distribution". Based on the said considerations that the proposed BPC is located within the same premises and no public or third party properties are involved, the supply of power to BPC by BSEPL does not constitute a distribution activity under the NEPRA Act, and BSEPL will not require a distribution licence for delivering electric power to the BPC.

(vii). The Authority has observed that according to the information provided by BSEPL, its generation facility/Solar Power Plant/Solar Farm will achieve Commercial Operation Date (COD) on June 30, 2024 and will have a useful life of twenty five (25) years from its COD. In this regard, the Authority considers that normally a PV based solar generation facility has a useful life of twenty-five (25) to thirty (30) years. In view of the fact that BSEPL has requested for a shorter term, therefore, the Authority fixes the term of the proposed concurrence to twenty five (25) years from its COD.

(viii). Regarding compliance with the environmental standards, BSEPL has confirmed that it will comply with the required standards during the term of the generation concurrence. In view of the importance of the issue, the Authority has decided to include a separate article in the generation concurrence along with other terms and conditions making it obligatory for BSEPL to comply with relevant environmental standards at all times.

(ix). The Authority has duly considered the comments of stakeholder(s) as explained above. In this regard, the Authority has observed that CPPA-G has raised various concerns on the proposal including (a). the frame work for grant of generation concurrence and related technical standards for establishment of the power plant have not yet been specified by the Authority; (b). Section-14D(3) and Section-23(E) of the NEPRA Act mandates the acquisition of supply licence to supply electricity to any consumer and (c). the applicant is intending to supply power by installing generation facility within the premises of BPC which is behind the metering supply arrangement and such arrangement will reduce the energy consumption of the BPC from the grid but its contribution in peak demand will remain the same.

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(x). In consideration of the above, the Authority has observed that BSEPL has submitted rejoinder to the above observations of CPPA-G as explained in the preceding paragraphs and the Authority has duly considered the same as plausible. However, the Authority considers it appropriate to give its findings on the above mentioned observations and address the same in the current determination in the matter of application for the grant of generation concurrence of BSEPL. In this regard on the observation of CPPA-G regarding absence of technical standards etc, the Authority has observed that the technical standards as mentioned in Section-14B(5) of the NEPRA Act are applicable to the generation companies which plan to connect to the grid. In the particular application the generation company does not intend to connect to the grid, instead has proposed to supply electricity directly to the BPC. Regarding comments of CPPA-G, for the acquisition of supplier licence to supply electricity to any consumer, the Authority clarifies that the current application of BSEPL is for the grant of generation concurrence and suitable directions will be given to BSEPL for applying for a supplier licence. On the observations that such arrangement will reduce the energy consumption of the BPC from the grid but its contribution in peak demand will remain the same. In consideration of the said, the Authority iterates that through its determination dated January 11, 2021 pertaining to the inclusion of "Wheeling Cost" in the tariff determination of DISCO(s) under Annual & Multi-Year Tariff Regime (FY 2018-19 & FY 2019-20) and Determination of the Authority in the Matter of Petition of GEPCO for Determination of its Supply of Power Tariff Under MYT Regime for the FY 2020-21 to FY 2024-25 (Case No. Nepra/TRF-563/Gepco-2021), dated June 02, 2022, it decided that Hybrid BPC(s), keeping connection from DISCO as backup will be charged the Fixed Charges based on 50% of the sanctioned load or actual MDI for the month, whichever is higher. In view of the said, the Authority has already initiated the process of suitable amendments in the relevant regulation allowing BPC(s) to have dual connection i.e. from the CS and Supplier of Last Resort. Further, the Authority is in the process of deciding the petitions of XW-DISCO(s) pertaining to the Use of System Charges [UoSC(s)] including the cross subsidy and stranded cost and all the related issues will be decided there which will be applicable to BPC(s) availing supply other than

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the utility while keeping connection from DISCO(s) as well. In view of the said, the Authority considers that the observations of CPPA-G stand addressed and settled.

(xi). In consideration of the above, the Authority hereby approves the grant of generation concurrence to BSEPL on the terms and conditions set out in the generation concurrence annexed to this determination. The grant of generation concurrence will be subject to the provisions contained in the NEPRA Act, relevant rules, regulations framed thereunder and other applicable documents. The grant/approval is restricted to the generation of electric power from the generation facility of BSEPL only and not for sale/supply of electric power to the BPC. In order to supply electric power to the BPC, the Authority further directs BSEPL to apply for the Electric Power Supplier Licence under Section-23E of the NEPRA Act within a period of ninety (90) days of this determination.

Authority

Engr. Maqsood Anwar Khan
(Member)

My dissent is attached.

Engr. Rafique Ahmed Shaikh
(Member)

Engr. Mathar Niaz Rana (nsc)
(Member)

Amina Ahmed
(Member)

Engr. Waseem Mukhtar
(Chairman)

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DISSENT NOTE OF MR RAFIQUE AHMED SHAIKH MEMBER NEPRA.

While I generally support granting concurrence to such projects, I have serious concerns about the potential for further confusion. The crux of granting a concurrence license before the Authority revolves around the supply of generated electricity from the referenced power plant to a bulk power consumer. It's important to recognize that this supply is a licensed activity, yet NEPRA's current regulatory framework does not allow for the issuance of supply licenses for such facilities. This has left nearly 12 similar supply license applications pending before NEPRA, awaiting adjudication and decision.

Granting generation concurrences without a clear, established framework for processing and approving supply licenses is not only futile but risks intensifying the existing disorder in the sector. While NEPRA, through determination/decision, mandates that generation concurrence holders apply for a supply license within 90 days, the lack of a regulatory framework to process these applications renders this directive ineffective. Furthermore, there is a significant risk that electricity could be supplied without a proper supply license. Alternatively, if the plant is commissioned but unable to supply electricity, it would result in underutilization of the capital invested. Additionally, granting concurrence licenses without a clear future roadmap raises the legitimate expectations of licensees, which could hinder NEPRA's ability to make independent decisions when amending its regulatory framework.

It is therefore appropriate that NEPRA first establish a clear framework for handling supplier license applications in these cases before moving forward with the issuance of generation concurrences.

21/02/24

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National Electric Power Regulatory Authority
(NEPRA)
Islamabad – Pakistan

GENERATION CONCURRENCE
No. SGC/C/03/2024

In exercise of the powers conferred upon the National Electric Power Regulatory Authority (NEPRA) under Section-14(B)(5) of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (Act No. XL of 1997), as amended or replaced from time to time, the Authority hereby grants a Concurrence to:

BURJ SOLAR ENERGY (PRIVATE) LIMITED

Incorporated under Section-32 of
the Companies Ordinance, 1984 (XLVII of 1984) having Corporate Universal Identification No. 0083734, dated May 08 , 2013

for its PV based Generation Facility/Solar Power Plant/Solar Farm located at Friesland Compina Engro Pakistan Limited, 8-KM, Pakpatan Road, District Sahiwal, Punjab

(Installed Capacity: 03.006 MW_P)

to engage in generation of electric power business subject to and in accordance with the Articles of this Concurrence.

Given under my hand on 23rd day of Sep Two Thousand & Twenty Four and expires on 29th day of June Two Thousand & Forty-Nine.

Waseem Anwar

Registrar

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Article-1
Definitions

1.1 In this Concurrence

(a). "Act" means the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (Act No. XL of 1997), as amended from time to time;

(b). "Applicable Documents" means the rules and regulations framed by the Authority under the Act, any documents or instruments issued or determinations made by the Authority under any of the foregoing or pursuant to the exercise of its powers under the Act, the Grid Code, the applicable Distribution Code, the Market Commercial Code if any, or the documents or instruments made by the Generation Company pursuant to its Concurrence, in each case of a binding nature applicable to the Generation Company or, where applicable, to its affiliates and to which the Generation Company or any of its affiliates may be subject;

(c). "Applicable Law" means the Act and all the Applicable Documents;

(d). "Authority" means the National Electric Power Regulatory Authority constituted under Section-3 of the Act;

(e). "Bulk Power Consumer (BPC)" means a consumer who purchases or receives electric power, at one premises, in an amount of one (01) megawatt or more or in such other amount and voltage level and with such other characteristics as the Authority may specify and the Authority may specify different amounts and voltage levels and with such other characteristics for different areas;

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(f). "Bus Bar" means a system of conductors in the generation facility/Solar Power Plant/Solar Farm of the Generation Company on which the electric power from all the photovoltaic cells is collected for supplying to the BPC;

(g). "Commercial Operations Date (COD)" means the day immediately following the date on which the generation facility/Solar Power Plant/Solar Farm of the Generation Company is Commissioned;

(h). "Commissioned" means the successful completion of commissioning of the generation facility/Solar Power Plant/Solar Farm for continuous operation and despatch to the BPC;

(i). "Concurrence" means this concurrence granted to the Generation Company for its generation facility/Solar Power Plant/Solar Farm in terms of Section 14B(5) of the Act;

(j). "Distribution Code" means the distribution code prepared and revised from time to time by the concerned XW-DISCO with necessary approval of the Authority;

(k). "Generation Company" means **Burj Solar Energy Private Limited** or its successors or permitted assigns;

(l). "Grid Code" means the grid code prepared and revised from time to time by NTDC with necessary approval of the Authority;

(m). "Licensing Regulations" means the National Electric Power Regulatory Authority Licensing (Application, Modification, Extension and Cancellation) Procedure Regulations, 2021 as amended or replaced from time to time;

(n). "Market Commercial Code" means the market commercial code prepared and revised from time to time by Market Operator with necessary approval of the Authority;

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(o). "Market Operator" means a person responsible for organization and administration of trade in electricity and payment settlements among generators, licensees and consumers;

(p). "Net Delivered Energy" means the net electric energy expressed in kWh that is generated by the generation facility/Solar Power Plant/Solar Farm of the Generation Company at its outgoing Bus Bar and delivered to the BPC;

(q). "Solar Power Plant/Solar Farm" means a cluster of photovoltaic cells located on ground in the same location used for production of electric power; and

(r). "XW-DISCO" means an Ex-WAPDA distribution company engaged in the distribution of electric power".

1.2 The words and expressions used but not defined herein bear the meaning given thereto in the Act or rules and regulations issued under the Act.

Article-2
Applicability of Law

This Concurrence is issued subject to the provisions of the Applicable Law, as amended or replaced from time to time.

Article-3
Generation Facilities

3.1 The location, size (capacity in MW), technology, interconnection arrangements, technical limits, technical functional specifications and other details specific to the generation facility/Solar Power Plant or Solar Farm of the Generation Company are set out in Schedule-I of this Concurrence.

3.2 The net capacity/Net Delivered Energy of the generation facility/Solar Power Plant or Solar Farm of the Generation Company is set out in Schedule-II of this Concurrence. The Generation Company shall provide the final

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arrangement, technical and financial specifications and other specific details pertaining to its generation facility/Solar Power Plant/Solar Farm before it is Commissioned.

Article-4
Term of Concurrence

4.1 This Concurrence shall become effective from the date of its issuance and will have a term of twenty five (25) years from the COD of the generation facility/Solar Power Plant/Solar Farm, subject to the provisions of Section-14(B) of the Act.

4.2 Unless suspended or revoked earlier, the Generation Company may apply for renewal of this Concurrence ninety (90) days prior to the expiry of the above term, as stipulated in the Licensing Regulations.

Article-5
Concurrence Fee

The Generation Company shall pay to the Authority the Concurrence Fee as stipulated in the National Electric Power Regulatory Authority (Fees) Regulation, 2021 as amended or replaced from time to time.

Article-6
Competitive Trading Arrangement

6.1 The Generation Company shall participate in such manner as may be directed by the Authority from time to time for development of a Competitive Trading Arrangement.

6.2 The Generation Company shall in good faith work towards implementation and operation of the aforesaid Competitive Trading Arrangement in the manner and time period specified by the Authority. Provided that any such participation shall be subject to any contract entered into between the Generation Company and another party with the approval of the Authority.

6.3 Any variation or modification in the above-mentioned contracts for allowing the parties thereto to participate wholly or partially in the Competitive

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Trading Arrangement shall be subject to mutual agreement of the parties thereto and such terms and conditions as may be approved by the Authority.

Article-7
Maintenance of Records

The Generation Company shall maintain the copies of records and data in standard and electronic form and all such records and data shall, subject to just claims of confidentiality, be accessible by authorized officers of the Authority.

Article-8
Compliance with Performance Standards

The Generation Company shall comply with the relevant provisions of the National Electric Power Regulatory Authority Performance Standards (Generation) Rules, 2009 as amended or replaced from time to time.

Article-9
Compliance with Environmental & Safety Standards

9.1 The generation facility/Solar Power Plant/Solar Farm of the Generation Company shall comply with the environmental and safety standards as may be prescribed by the relevant competent authority as amended or replaced from time to time.

9.2 The Generation Company shall provide a certificate on a bi-annual basis, confirming that the operation of its generation facility/Solar Power Plant/Solar Farm is in conformity with required environmental standards as prescribed by the relevant competent authority as amended or replaced from time to time.

Article-10
Power off take Point and Voltage

The Generation Company shall deliver the electric power to the Power Purchaser at the outgoing Bus Bar of its generation facility/Solar Power Plant/Solar Farm. The Generation Company shall be responsible for the up-gradation (step up) of generation voltage up to the required dispersal voltage level.

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Article-11
Provision of Information

In accordance with provisions of Section-44 of the Act, the Generation Company shall be obligated to provide the required information in any form as desired by the Authority without any exception.

Article-12
Compliance with Applicable Law

The Generation Company shall comply with the provisions of the Applicable Law, guidelines, directions and prohibitory orders of the Authority as issued from time to time.

Article-13
Corporate Social Responsibility

The Generation Company shall provide the descriptive as well as monetary disclosure of its activities pertaining to corporate social responsibility (CSR) on an annual basis.

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SCHEDULE-I

The Location, Size (i.e. Capacity in MW), Type of Technology, Interconnection Arrangements, Technical Limits, Technical/Functional Specifications and other details specific to the Generation Facilities of the Generation Company are described in this Schedule.

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Location of the Generation Facility/Solar Power Plant of the Generation Company

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Land Coordinates of the Generation Facility/Solar Power Plant of the Generation Company

Sr. No.	Latitude	Longitudes
A.	30°36'31.34"	73°7'47.85"

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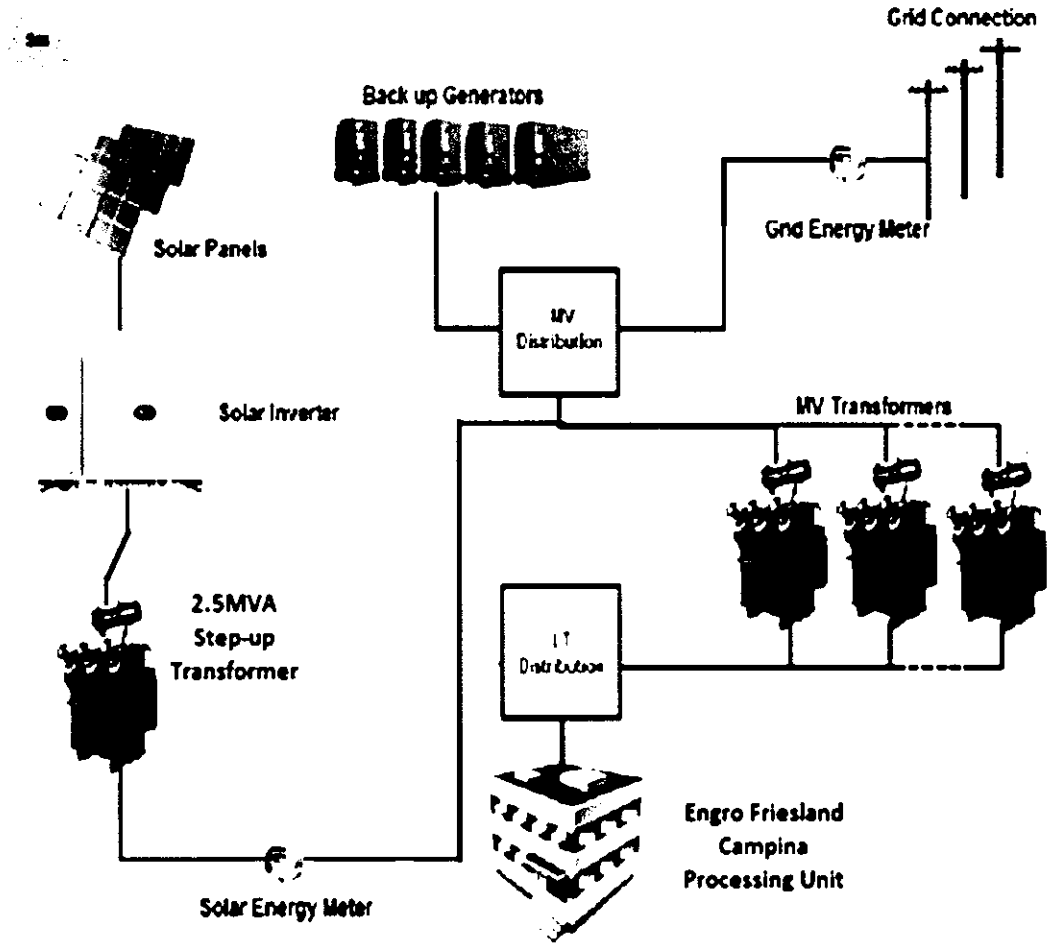
Process Flow Diagram of the Generation Facility/Solar Power Plant of the Generation Company



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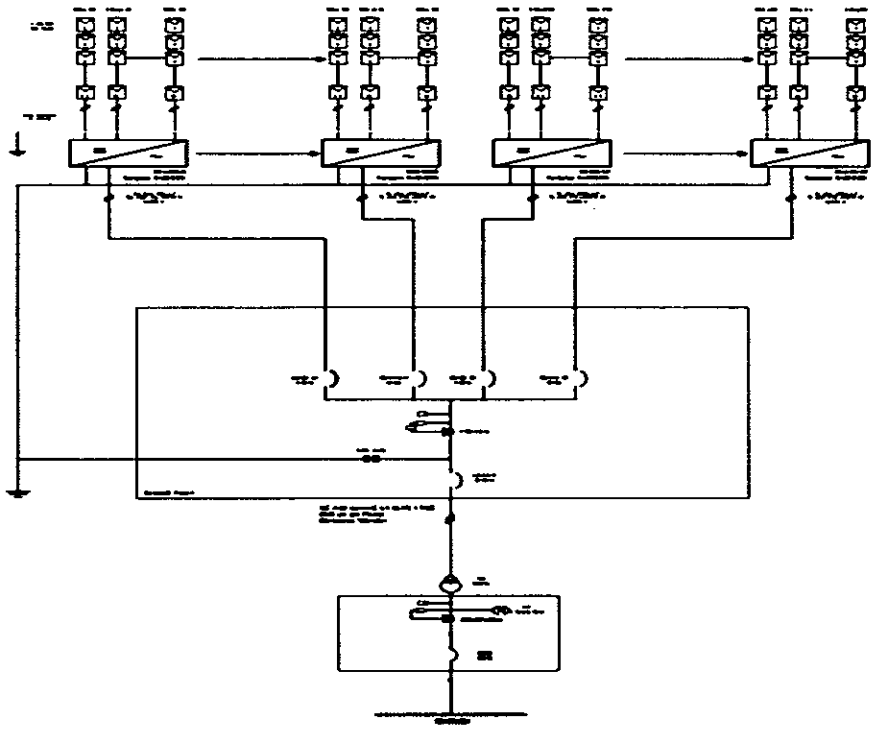
Single Line Diagram of the Generation Facility/Solar Power Plant/Solar Farm of the Generation Company



Legends	Navigation :
	Notes:

Interconnection Arrangement/Transmission Facilities for Dispersal of Power from the Generation Facility/Solar Power Plant/Solar Farm of the Generation Company

The electric power generated from the generation facility/Solar Power Plant/Solar Farm of the Burj Solar Energy (Private) Limited-BSEPL/Generation Company will be delivered/supplied to Friesland Compina Engro Pakistan Limited as a Bulk Power Consumer (BPC).

(2). The details pertaining to BPC, the supply arrangements and other relating information are provided in the subsequent description of this schedule. Any changes in the said, shall be communicated to the Authority in due course of time.

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Details of Generation Facility/Solar Power Plant/ Solar Farm

(A). General Information

(i).	Name of the Company/Licensee	Burj Solar Energy (Private) Limited
(ii).	Registered/ Business office of the Company/Licensee	Office#202, 11-C, Al Murtaza Commercial Lane 2, DHA Phase 8, Karachi.
(iii).	Type of the generation facility/Solar Power Plant/Solar Farm	Photovoltaic (PV) Cell
(iv).	Location(s) of the generation facility Solar Power Plant/ Solar Farm	Friesland Compina Engro Pakistan Limited, 8-KM, Pakpatan Road, District Sahiwal, Punjab

(B). Solar Power Generation Technology & Capacity

(i).	Type of Technology	Photovoltaic (PV) Cell	
(ii).	System Type	On-Grid	
(iii).	Installed Capacity of the generation facility Solar Power Plant/ Solar Farm (MW/KW)	03.006 MW_P	
(iv).	No. of Panel/Modules	5,516	
(v).	PV Array	Nos. of Strings	197
		Modules in a string	28
(vi).	Inverter(s)	Quantity	8
		Make	Sungrow

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(C). Technical Details of Equipment

(a).	**Solar Panels – PV Modules**		
(i).	Type of Module	JAM72S30-545/MR	
(ii).	Type of Cell	Mono Perc-crystalline PV Module	
(iii).	Dimension of each Module	2,279 x 1134 x 35 mm	
(iv).	Total Module Area	1.4268 m^2	
(v).	Frame of Panel	Anodized aluminum alloy	
(vi).	Weight of one Module	28.6 kg	
(vii).	No of Solar Cells in each module	144	
(viii).	Efficiency of module	21.1	
(ix).	Maximum Power (P_{max})	545 Wp	
(x).	Voltage @ P_{max}	41.8	
(xi).	Current @ P_{max}	13.4	
(xii).	Open circuit voltage (V_{oc})	49.75	
(xiii).	Maximum system open Circuit Voltage	1500 V	
(b).	**Inverters (Sungrow, 350HX)**		
(i).	Input Operating Voltage Range	500 V to 1500 V	
(ii).	Efficiency of inverter	98.8 %	
(iii).	Max. Allowable Input voltage	1500V	
(iv).	Max. Current	DC 480 A	
(v).	Max. Power Point Tracking Range	500 V to 1500 V DC	
(vi).	Output electrical system	3 Phase, 4-Wire	
(vii).	Rated Output Voltage	AC 230/400 V	
(viii).	Power Factor (adjustable)	0.8 leading – 0.8 lagging	
(ix).	Power control	MPP tracker	
(x).	Rated Frequency	50 Hz	
(xi).	Environmental Enclosures	Relative Humidity	100% non-condensing

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		Operating Elevation	> 4000 m
		Operating temperature	-30 to 60 °C
(xii).	Grid Operating protection	A	DC Disconnect Switch
		B	Anti-Islanding
		C	DC SPD
		D	DC Reverse Polarity Protection
		E	AC SPD
		F	Residual Current Monitoring Unit
(c).	**Data Collecting System**		
(i).	Weather Data	(a).	Irradiation, Temp, Air Pressure, Wind Speed, Rel. Humidity
(ii)	System Data	(a).	DC input voltage & Current
		(b).	Total DC Power
		(c).	Output Voltage & Currnent
		(d).	AC output Power and Energy
		(e).	Frequency
		(f).	Power Factor
(d).	**Transformer**		
(i).	Rating (KVA)	3000	
(ii).	Cooling Type	ONAN	
(iii).	Rated MV Voltage	11000 V	
(iv)	Rated LV Voltage	800 V	
(v).	Temperature Rating	50 °C	
(vi).	No Load Losses	3500 W	
(vii)	Impedance	7%	

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(D). Other Details

(i).	Expected COD of the generation facility Solar Power Plant/Solar Farm	June 30, 2024
(ii).	Expected useful Life of the generation facility/Solar Power Plant/ Solar Farm from the COD	25 years

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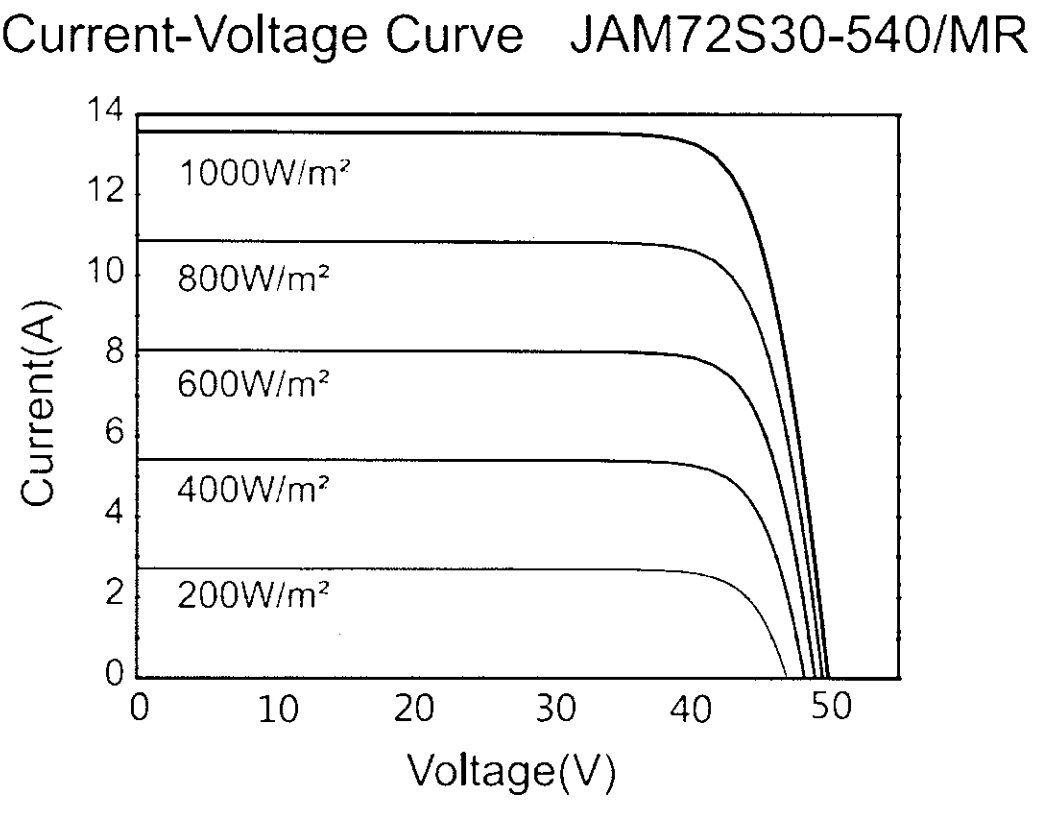
V-I Curve
Generation Facility/Solar Power Plant/Solar Farm of the Generation Company



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SCHEDULE-II

The Total Installed Gross ISO Capacity of the Generation Facility/Solar Power Plant/Solar Farm (MW), Total Annual Full Load (Hours), Average Sun Availability, Total Gross Generation of the Generation Facility/Solar Farm (in kWh), Annual Energy Generation (25 years Equivalent Net Annual Production-AEP) KWh and Net Capacity Factor of the Generation Facility/Solar Farm of Generation Company are given in this Schedule.

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SCHEDULE-II

(1).	Total Installed Capacity of the Generation Facility/Solar Power Plant/Solar Farm	3.006 MWp
(2).	Average Sun Hour Availability/ Day (Irradiation on Inclined Surface)	5.18
(3).	No. of days per year	365
(4).	Annual generating capacity of Generation Facility/Solar Power Plant/Solar Farm (As Per Simulation)	4,217 MWh
(5).	Total (approximated) expected generation of the Generation Facility/Solar Power Plant/Solar Farm during the twenty five (25) years term of this licence	98,172 MWh
(6).	Annual generation of Generation Facility/Solar Power Plant/Solar Farm based on 24 hours working	22,425 MWh
(7).	Net Capacity Factor of Generation Facility/Solar Power Plant/Solar Farm	16.01%

Note

All the above figures are indicative as provided by the Licensee. The Net Delivered Energy available to Power Purchaser for dispatch will be determined through procedures contained in the Energy Purchase Agreement (EPA) or the Applicable Document(s).

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